



# National Police Research Platform



## Police Technology

Jack McDevitt, Chad Posick, Dennis P. Rosenbaum, Amie Schuck

### Purpose

In the modern world, technology has significantly affected the way societies police their citizenry. The history of policing is filled with examples of how technological advancements were used to re-define the role of the police and re-organize the business of policing. For example, motorized preventive patrol and rapid response to calls for services were a direct result of the invention and availability of the automobile and the two-way radio. Crime scene investigation protocols were dramatically changed with the discovery of DNA testing, and less-than-lethal technologies impact how officers around the country are trained to deal with hostile and dangerous citizens. Intelligence-led policing, COMPSTAT, crime mapping, and community-focused problem solving are practical on a large scale because of information technologies such as computers, databases, and advanced analytic techniques.

Given the importance of technology in policing, researchers have included a technology survey in the National Police Research Platform (NPRP) to demonstrate the potential for learning more about the interface between technology and policing. In this context, we use technology to refer to hardware, such as Tasers, bulletproof vests, and in-car cameras as well as informational or social technologies such as databases, software, and the Internet. The Law Enforcement Management Administrative Statistics (LEMAS) survey provides valuable information on whether agencies have advanced technologies; however, it is limited with respect to information about diffusion of technology within an organization and the impact that advanced technologies have on ways in which officers carry out their day-to-day tasks. One of the advantages of the Platform is its ability to drill down on specific topics and explore trends across units. Table 1 presents a comparison of the data collected in the LEMAS and the NPRP survey.

## The National Police Research Platform

The National Police Research Platform was developed as a vehicle to continuously advance our knowledge of police organizations and their employees and to provide regular and timely feedback to police agencies and policy makers nationwide. In doing so, the Platform is expected to advance both the science of policing and evidence-based learning organizations. This project was supported by Award No. 2008-DN-BX-0005 awarded by the National Institute of Justice, Office of Justice Programs, U.S. Department of Justice. The opinions, findings, and conclusions or recommendations expressed in this publication/program/exhibition are those of the author(s) and do not necessarily reflect those of the Department of Justice.

**Table 1. Technology Survey and the Law Enforcement Management Administrative Statistics (LEMAS) Series.**

<u>Law Enforcement Management Administrative Statistics (LEMAS) Series 2003</u>	<u>National Police Research Platform (NPRP) Technology Survey 2010</u>
<p><b>Crime Mapping</b></p> <ul style="list-style-type: none"> <li>Information on whether an agency uses computers for crime mapping.</li> </ul>	<p><b>Crime Mapping</b></p> <ul style="list-style-type: none"> <li>Information on whether an agency produces crime maps.</li> <li>How often an agency produces crime maps.</li> <li>Who in the agency is most likely to use crime maps.</li> <li>Information on how the officers are using crime maps.</li> <li>If crime maps are not being generated, data on the level of support for the adoption of crime mapping technology in the organization.</li> </ul>
<p><b>In-Car Cameras</b></p> <ul style="list-style-type: none"> <li>The number of in-car cameras an agency operates.</li> </ul>	<p><b>In-Car Cameras</b></p> <ul style="list-style-type: none"> <li>Information on whether the agency uses in-car cameras.</li> <li>Data on how officers are using in-car cameras.</li> <li>Officers' perceptions of the usefulness of in-car cameras.</li> </ul>
<p><b>Tasers</b></p> <ul style="list-style-type: none"> <li>Information on whether Tasers are authorized by the agency for field/patrol officers.</li> </ul>	<p><b>Tasers</b></p> <ul style="list-style-type: none"> <li>Information on whether an agency supplies Tasers to officers.</li> <li>How many officers have displayed (but not fired) a Taser.</li> <li>How many officers have fired a Taser.</li> <li>Data on who in the organization is most likely to use Tasers.</li> <li>The level of organizational support for the distribution and utilization of Tasers.</li> </ul>

### Methods

This report provides analysis and discussion of the police technology survey administered to police officers in select cities in the US via the Internet. All surveys were administered by the University of Illinois at Chicago's Center for Research in Law and

Justice using the online survey tool Qualtrics. Survey questions captured officers' attitudes and experiences about a broad range of technologies including in-car cameras, crime mapping, and Tasers. Surveys were piloted by the research team and averaged approximately 10 minutes to complete. These voluntary surveys were offered to all sworn and civilian employees at the selected police departments and there were no intrinsic rewards or penalties for completing the survey. All survey procedures were approved by the UIC institutional review board. In this report we included only the responses from sworn officers.

As of this report, a total of 505 sworn officers have taken the technology survey. The demographic information of the sworn officers is presented in Table 2. In general, the majority of the respondents who completed the survey were male, over 40 years of age, and had a college degree or higher level of education. Less than 20 percent of the respondents reported military experience, about one third were supervisors, and over half were assigned to patrol. Slightly fewer supervisors and more patrol officers from the small agencies took the survey compared to those from larger and medium sized agencies.

Table 2. Survey Respondent Demographic Data				
	Large and Medium Agencies (N=2)		Small Agencies (N=2)	
	N	%	N	%
<b>Gender</b>				
Male	268	83.0	106	86.7
Female	55	17.0	16	13.3
<b>Education</b>				
High school/GED	8	2.5	3	2.5
Some college	89	27.3	25	21.0
College degree	143	43.9	66	55.5
Advanced education	86	26.4	25	21.0
<b>Military Experience</b>				
Yes	59	18.0	22	17.7
No	269	82.0	102	82.3
<b>Supervisor</b>				
Yes	114	34.5	32	26.0
No	216	65.5	91	74.0
<b>Assignment</b>				
Patrol	173	52.3	80	64.0
Other	158	47.7	45	36.0
<b>Age</b>	295	M=42.1; SD=9.5	95	M=41.1; SD=9.1

## KEY FINDINGS

Findings are described from three areas covered on the technology survey: 1) use of in-car cameras, 2) production of crime maps, and 3) use of Tasers by police officers.

**In-car cameras.** Survey respondents were asked to provide information on whether or not the department uses in-car cameras and about the extent to which they use in-car cameras as part of the respondents' individual job. Table 3 presents responses from the 2003 LEMAS data along with the Platform's 2010 data. Many of the discrepancies between the two sources may be due to agencies adopting new technologies between the 2003 and 2010 surveys.

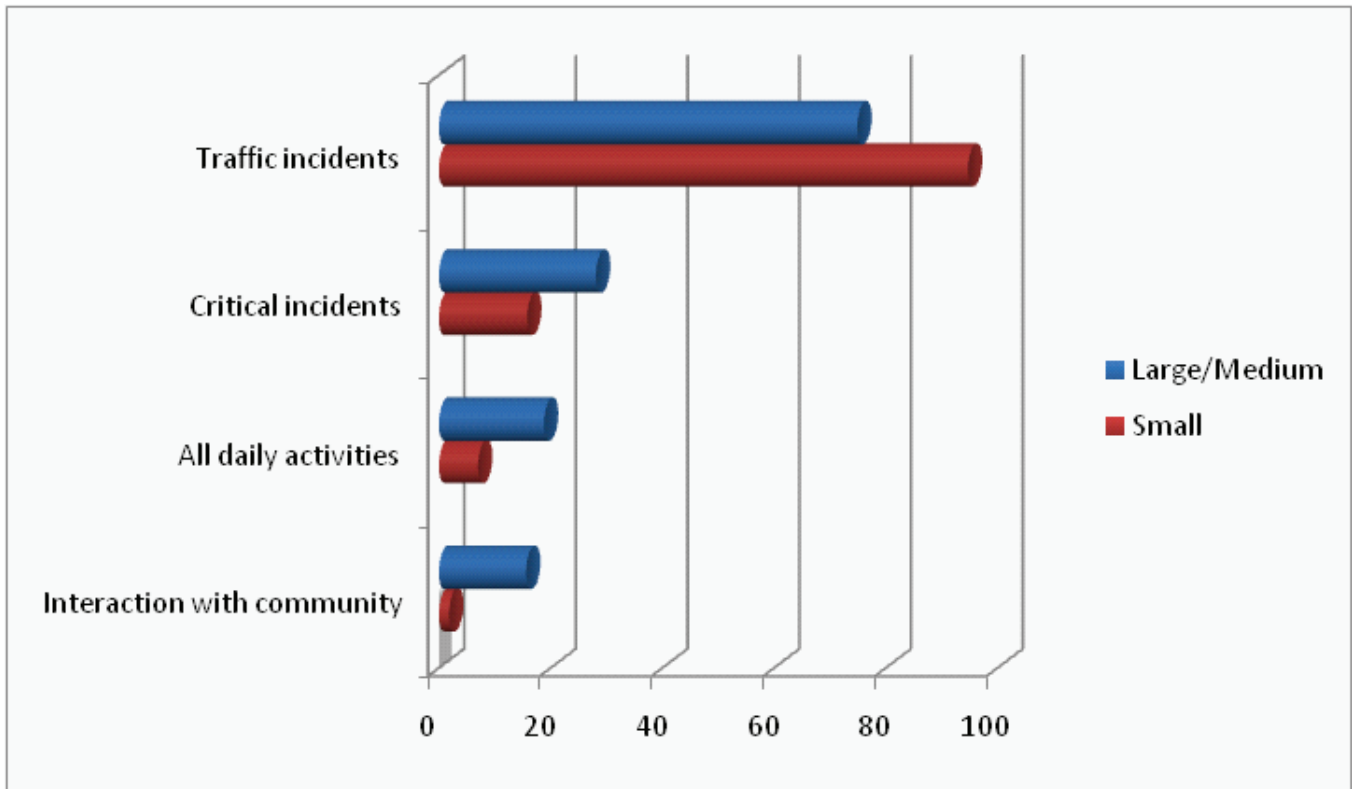
Table 3. Results for In-Car Cameras				
	Agency			
	A*	B	C	D
LEMAS (2003)				
Number of in-car cameras in patrol cars	0	30	40	7
Estimate of % of vehicles with in-car cameras	0%	12%	65%	44%
NPRP (2010)				
Most Cars	38.7%	3.6%	48.5%	29.3%
Some Cars	61.3%	82.8%	50.3%	64.9%
None	0%	13.5%	3.7%	5.8%

Note: The estimate was calculated by taking total number of marked motor vehicles operated by the agency, dividing it by the number of reported cameras in patrol cars and multiplying by 100.

\* This agency started using in-car cameras in 2007.

About 10.2 percent of officers from large and medium sized agencies and 46.7 percent of officers from small agencies reported using an in-car camera while on the job. For those who reported using an in-car camera, the camera is most often used to record traffic incidents (see Figure 1). This was true for large and medium agencies as well as small agencies. The results suggest that large and medium agencies may use their in-car camera for recording a wider range of activities than do smaller agencies, which seem to almost exclusively use the cameras for traffic-related events.

Figure 1. The percentage of respondents who reported using in-car cameras for recording each type of activity.



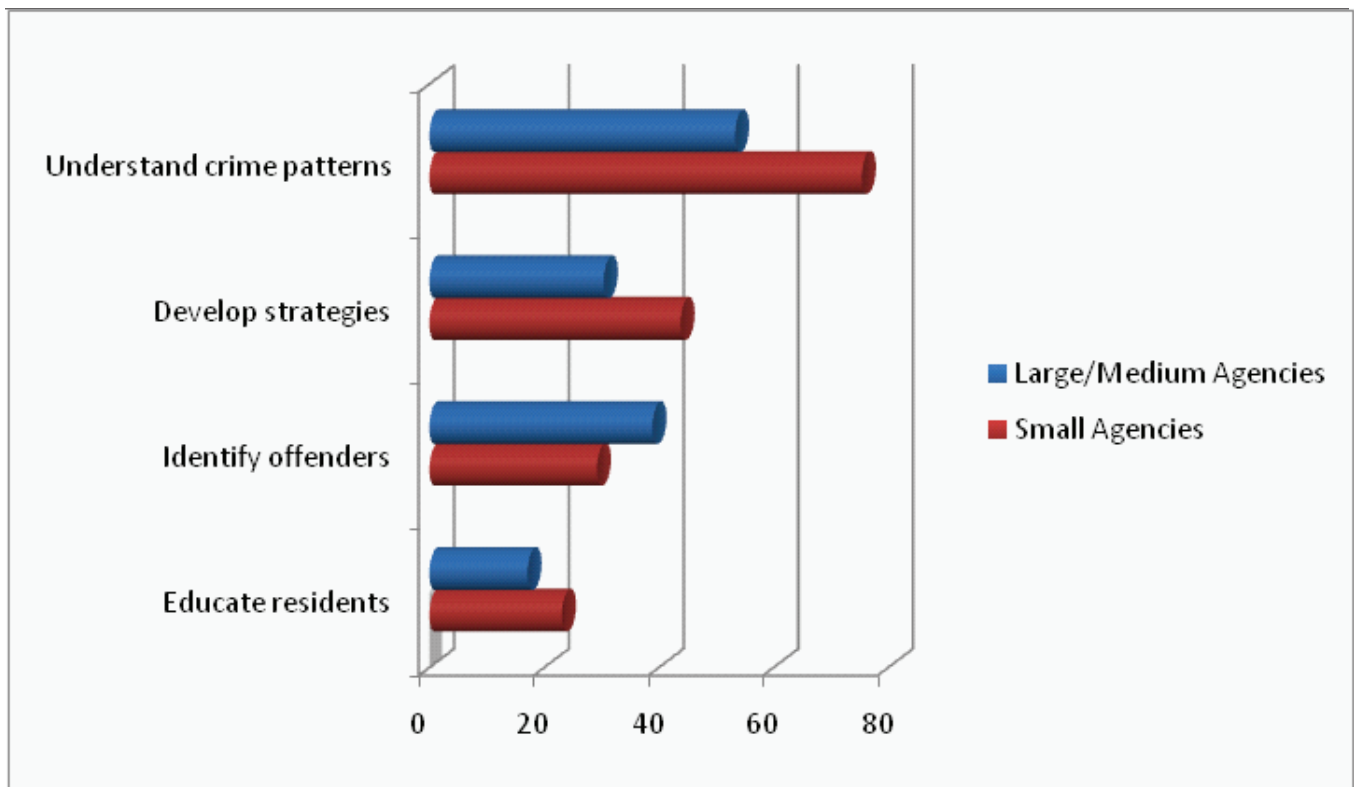
The findings from the survey also indicate that video footage from the in-car cameras is being used by the agency. Fifty-six percent of respondents from small agencies and 45 percent of respondents from large and medium-sized agencies reported that video footage from their camera was used to prosecute an offender. Further, 62.2 percent of officers from small agencies and 52.6 percent from large and medium agencies reported that the video footage from their camera had been used to exonerate a department member who was falsely accused.

**Crime Mapping.** With the proliferation of problem-oriented policing (POP), COMPSTAT, and other strategic approaches to crime control, there is a need for research on the use of technology in these efforts. One of the major techniques used in POP, COMPSTAT, and other strategic approaches to policing is crime mapping. In some departments crime mapping is done within crime analysis centers while in others it is primarily conducted by officers in their daily activities. Table 4 shows that nearly all respondents reported that their agency used crime mapping to some extent. Again it should be noted that agencies could have implemented crime mapping in their agency between the 2003 and 2010 surveys.

Table 4. Results for Crime Mapping				
	Agency			
	A	B	C	D
LEMAS (2003)				
Does the agency use computers for crime mapping?	Yes	Yes	No	Yes
NPRP (2010)				
Does your agency produce crime maps?				
Yes – every officer	42.0%	66.0%	93.9%	100%
Yes – some officers	55.2%	34.0%	6.1%	0%
None	2.8%	0%	0%	0%

Additionally, it is important to understand how officers are using crime maps. Figure 2 shows utilization of crime mapping for several different activities for among agencies of varying sizes. Although all departments responding to our survey reported having crime mapping capability, the use of this technology is somewhat limited, according to officers responding to our survey. For agencies of any size, the most common use of maps was to identify crime patterns in their community. For larger agencies, maps were used to identify offenders more often than in smaller agencies; and for smaller agencies, officers were more likely to use crime maps to develop crime reduction strategies.

Figure 2. Most common uses for crime mapping



Finally, in agencies of any size, the least common use of crime maps was to keep community residents informed, with fewer than one-in-four officers reporting that crime maps were used to educate the community about crime.

**Tasers.** Much recent attention has been focused on the use of Tasers by police officers and other public safety officials. Popular and scholarly debate exists around whether or not Tasers increase police officer safety and civilian compliance.

Table 5. Results for Tasers				
	Agency			
	A	B	C	D
LEMAS (2003)				
Are Tasers authorized for use by your agency?	Yes	Yes	No	No
NPRP (2010)				
Does your agency supply Tasers to its officers?				
Yes – all officers	15.5%	20.7%	0%	0%
Yes – some officers	83.8%	59.9%	0%	0%
None	.7%	0%	100%	100%

As can be seen, only officers in larger agencies reported being authorized to carry Tasers. In the large and medium-sized agencies, about 38 percent of officers reported having been assigned a Taser, and of those, about 73 percent reported displaying (but not firing) their Taser more than once to get citizen compliance. Somewhat surprising, over 57 percent of those assigned a Taser reported firing the weapon.

Given the public debate over the use of Tasers, it is important to understand how officers perceive Tasers. Particularly, it is important to uncover the perceived effectiveness of Tasers and whether they produce a sense of safety for police officers. As Figures 3 and 4 show, officers are overwhelmingly supportive of carrying Tasers and believe that they increase citizen compliance.

Figure 3: Perceptions of the Effectiveness of Tasers

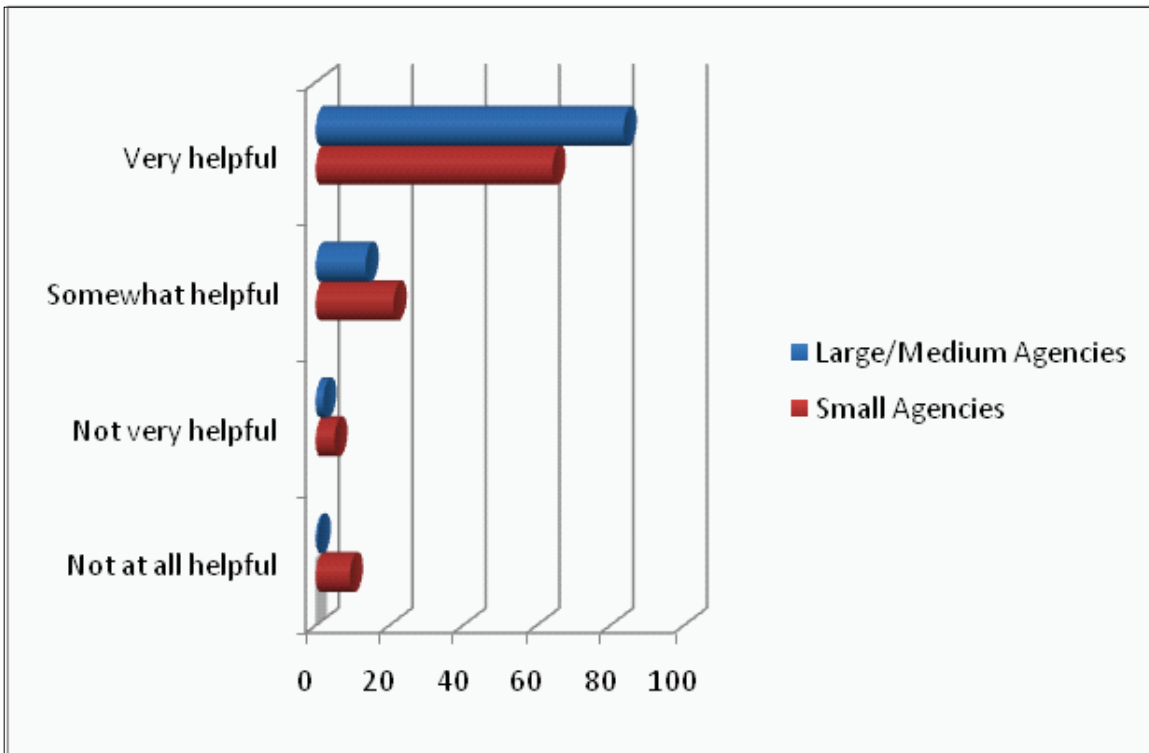
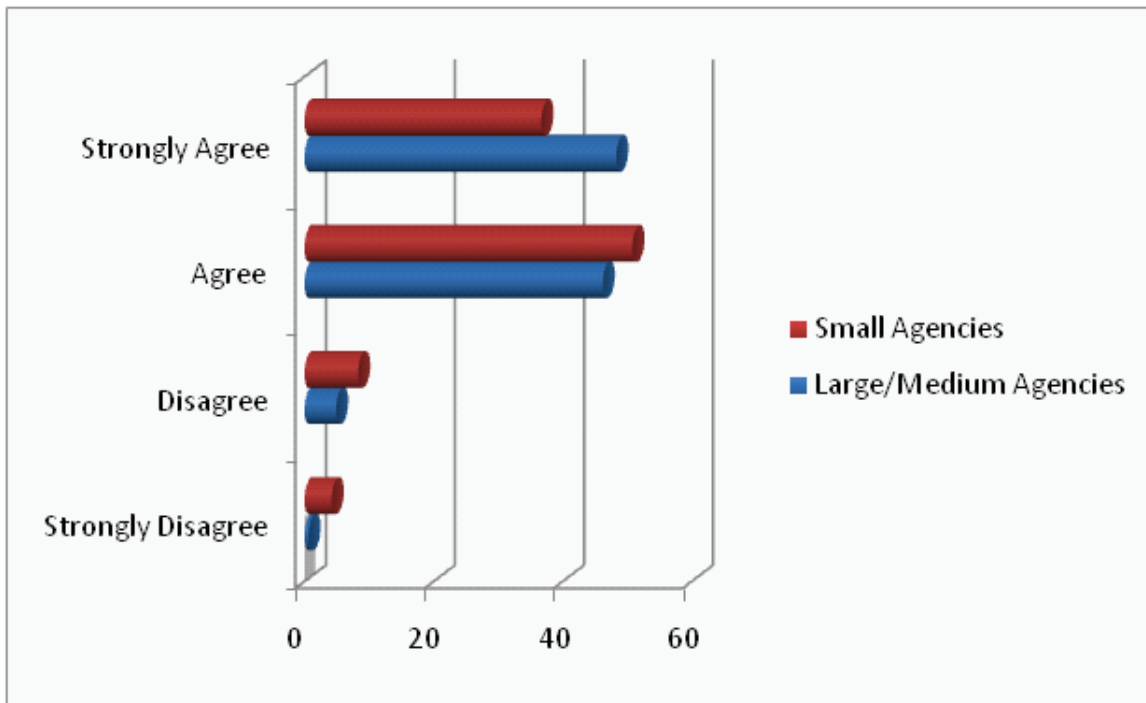


Figure 4. Tasers are effective at getting citizens to cooperate





## **Conclusion**

This report on police officers' views about technology in their agencies revealed some interesting results. While the majority of respondents reported that each of the technologies being studied (in-car cameras, crime mapping, and Tasers) were being used in their agencies, the way they were being used varied greatly. While the vast majority of officers reported having in-car cameras in their agency, very few reported that they were used in any routine way. In the case of crime mapping, 99 percent of respondents reported that their agency used crime mapping and that the mapping was used most often to identify crime patterns. In the case of Tasers, about three-quarters of the respondents reported that their agency used Tasers, often by a limited number of officers, and the results show very strong support for Tasers among survey respondents. This short survey illustrates the National Police Research Platform's proficiency in drilling down into a particular topic. With online surveys of employees, the Platform provides the ability to understand not only whether a particular technology is being used, but also how and why it is being used. Future surveys can explore a wide range of technology application in policing.